SUPPORTING INFORMATION SECTION

Oligonucleotide-Functionalized Carbon Nanotube Sensor for Sensitive Detection of Mercury in Saliva

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Detection of Hg^{2+} in buffer

The response of DNA-functionalized SWNTs biosensor was tested against increasing concentrations of Hg^{2+} (1 nM to 1000 nM) in PB solution (10 mM, pH 7.4). Fig. S2 shows the calibration curve, normalized change in resistance \[(R-R_o)/R_o\], where \(R\) is the resistance after incubation with Hg^{2+} and \(R_o\) is the resistance after hybridization between polyT and polyA] as a function of log concentration of Hg^{2+} (in nM). A linear response was observed for Hg^{2+} concentrations varying from 1 nM to 1000 nM and a linear regression equation of \(y = -0.2164x - 0.2549 (R^2 = 0.9145)\) was obtained.

**Fig. S1** Calibration curve for detection of Hg^{2+} in PB. Each data point is an average of measurements from 8 independent sensors and error bars represent ±1 standard deviation.

S1
**Fig. S2** Control experiment showing response of polyT functionalized SWNTs incubated with increasing concentrations of CH$_3$Hg$^+$ in absence of polyA. Each data point is an average of measurements from 5 independent sensors and error bars represent ±1 standard deviation.

**Fig. S3** Bar graphs showing the response of biosensor to a blank sample (phosphate buffer, 10 mM, pH 7.4), simulated human saliva sample in the absence of Hg$^{2+}$ ions and saliva sample spiked with 10 nm of Hg$^{2+}$ ions. Each data point is an average of measurements from 5 independent sensors and error bars represent ±1 standard deviation.
Table S1. Effect of mercapto-1-hexanol blocking on non-specific binding of CH$_3$Hg$^+$

<table>
<thead>
<tr>
<th>Response to 500 nm CH$_3$Hg$^+$</th>
<th>$\Delta R/R_0$ (average of 4 devices)</th>
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<tbody>
<tr>
<td>in absence of MCH blocking</td>
<td>0.81 ± 0.24</td>
</tr>
<tr>
<td>with MCH blocking</td>
<td>0.08 ± 0.10</td>
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